
Rule WLM090: SMF Type 30 Interval Recording not turned on

Finding: CPExpert has detected that a service class missed its performance goal, and experienced significant I/O delays. The **TYPE30_V** guidance variable in USOURCE(GENGUIDE) was set to "Y" to indicate that SMF Type 30 Interval Recording was turned on and the **TYPE30DD** guidance variable in USOURCE(GENGUIDE) was set to "Y" to indicate that the modification to MXG or MICS had been implemented to collect detailed DASD information.

CPExpert determined that a service class missed its performance goal, and CPExpert attempted to analyze SMF Type 30(Interval) data related to the service class. However, CPExpert could not find any interval records for the service class which had missed its performance goal.

Impact: This finding has NO IMPACT on performance of your computer system. The finding is provided simply to explain why CPExpert cannot analyze potential DASD delay information for the service class which missed its performance goal.

Logic flow: The following rules cause this rule to be invoked:

- Rule WLM300: Service class was delayed for UNKNOWN delay
- Rule WLM400: Server service class was delayed for UNKNOWN delay

Discussion: When CPExpert detects that a service class did not achieve its response goal, CPExpert analyzes the basic causes (see the discussion in the above predecessor rules). One of the possible causes of UNKNOWN delay is that the service class was delayed because of I/O activity.

CPExpert estimates the UNKNOWN delay which could be attributed to DASD I/O¹ by two basic methods:

- CPExpert computes the average DASD response per I/O for all **DASD devices**. This approach is the default method. This approach provides a general assessment of the typical DASD response. However, the approach suffers from the inability to determine whether the service class missing its performance goal experienced the "typical" DASD response.

¹The I/O delay could be associated with devices other than DASD, of course. CPExpert analyzes the I/O contribution to UNKNOWN delay using an estimated DASD I/O delay because (1) DASD delay is likely to be smaller than I/O delay to any other type of device and any resulting conclusion is more likely to be robust and (2) most important performance goals will be associated with on-line applications and on-line applications typically reference only DASD.

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- CPEXpert computes the average DASD response per I/O **for those DASD devices referenced by the service class**. This approach provides an assessment of the typical DASD response just for the DASD devices referenced by the service class.

In order to apply this approach, CPEXpert analyzes DASD information extracted from SMF Type 30(Interval) records using the CPEXpert modification to MXG or MICS. If this information is available for the service class missing its performance goal, CPEXpert can determine which DASD devices were referenced by the service class. CPEXpert can then use the DASD response characteristics of these devices in assessing whether DASD I/O could account for a significant part of the UNKNOWN delay.

Additionally, CPEXpert identifies applications which referenced DASD if DASD delay was felt to be significant.

The second approach is implemented only if the guidance in USOURCE(GENGUIDE) indicated that SMF Type 30(Interval) records were available (%LET TYPE30_V = Y was specified) and the guidance indicated that the CPEXpert modification to MXG or MICS had been implemented (%LET TYPE30DD = Y was specified).

Both of the above guidance variables were set to "Y", indicating that SMF Type 30(Interval) records were available and that the CPEXpert modification to MXG or MICS had been applied. However, CPEXpert could not locate any information in the CPEDASD.TYPE30DD SAS data set for the service class missing its performance goal.

The most likely reasons for this finding are (1) an incorrect specification was made in the USOURCE(GENGUIDE) guidance parameters for the system being analyzed or (2) the service class belongs to a subsystem for which Type 30(Interval) records are not being collected.

The following example illustrates the output from Rule WLM090:

RULE WLM090: SMF TYPE 30 INTERVAL RECORDING NOT TURNED ON

SMF interval recording was not turned on for the service classes listed below. However these classes missed their service goal, and experienced significant I/O delays. CPExpert cannot analyze DASD I/O delays for the DASD referenced by the service classes since the interval recording information is not available.

SERVICE CLASS	PERIOD	MEASUREMENT INTERVAL WHEN SERVICE CLASS MISSED GOAL
ST_USER	1	14:00-14:15,01MAR1994
ST_USER	1	14:15-14:30,01MAR1994
ST_USER	1	14:30-14:45,01MAR1994
ST_USER	1	14:45-15:00,01MAR1994

Suggestion: CPExpert can provide more detailed information about the causes of delays to service classes if the SMF Type 30(Interval) records are collected for the service class missing its performance goal.

You should examine the USOURCE(GENGUIDE) guidance parameters (TYPE30_V and TYPE30DD) to see whether they have been correctly specified. If the specifications do not match the SMF data available or the system being analyzed, you should correct the specifications.

If the TYPE30_V and TYPE30DD specifications are correct, then you probably have specified SMF parameters such that SMF Type 30(Interval) records are not being collected for the subsystem to which the service class belongs. You should assess whether this additional information is worth the modest system overhead incurred by collecting the SMF Type 30(Interval) records.

- You should determine whether the service class is a Started Task. If so, your installation could execute hundreds of Started Tasks and the overhead may be more significant than you wish to incur.
- If you decide that the system overhead is worth the additional information, change the SMF parameters to collect Type 30(Interval) records for the service class.

Reference: System Management Facilities (SMF)
Chapter 4: Customizing SMF